REVIEWS.

ART. XIV. *On the Nature and Treatment of Tetanus and Hydrophobia, with some Observations on a Natural Classification of Diseases in General.* By ROBERT REID, M. D. Licentiate of King and Queen's College of Physicians in Dublin, Member of the Royal Society of Edinburgh, &c. &c.

IN our last number will be found a lengthened discussion of that portion of the above work which relates to hydrophobia, with a pledge to give some further account of its contents. As stated on the former occasion, it is the importance of the subject of which it treats, and not the ability of the treatment, that has led us to select this diminutive and imperfect tract as the object of such elaborate attention. To redeem our pledge, we now proceed to the consideration of tetanus, the only remaining part of the work to which we attach the slightest value.

Nosologists now divide this disease into idiopathic and symptomatic, or traumatic, as it proceeds from general causes or is induced by the irritation of a wound. It was also formerly separated into species, according to the posture of the body when labouring under the affection: drawn forward, it was called emprosthotonos—backward, opisthotonos—to one side, pleurothotonos, or tetanus lateralis—seated in the neck, cervinus—in the muscles of the jaw, trismus—and on a general rigidity of the muscles taking place, holotonicos, or tetanos. But these distinctions are no longer regarded, and the terms of course exploded, which at all times should have been viewed more as *jaw-breakers*, than designations of *locked-jaw*.

In treating the subject we shall confine our remarks to the traumatic form of the disease, considering it as peculiar in its character, and indeed as the only genuine tetanus. Those imitative affections arising from other agencies, cannot, with propriety, be embraced within the same view, either theoretically or practically, and should be designated by the title *tenanoid*, so exactly expressive of their nature.

Tetanus, in the sense in which it was originally used, is not appropriate to all the states of the disease, the muscles, indeed, being much more frequently affected partially than generally. But in the modern acceptation, it means any variety of tetanic rigidity, and as

thus by common consent, adopted, we shall, with this explanation, retain it.

To wounds, as the term *traumatic* implies, is real tetanus exclusively owing, though what particular character of the injury, or the texture in which it may be seated, is required for the production of the disease, does not very clearly appear. Lacerations of nerves, tendons, and ligaments are undoubtedly most apt to occasion it, and are well calculated to excite alarm under all circumstances. Yet injuries of this kind are often harmless, in such respect, while in other instances tetanus has followed lesions in other structures, and of the most trivial description. No wound, it may be affirmed, is exempt from danger, wherever situated—whether it be lacerated, or gunshot, or a slight puncture, or a clean cut, a contusion, or common ulcer, or inflicted by a surgical operation. Cases in demonstration of this remark are abundantly distributed throughout our medical records, and are familiar to practitioners of experience or reading.

The interval between the occurrence of the cause and the tetanic effect is exceedingly indefinite. Much depends on the constitution of the patient, its irritability or otherwise, and other states of system, as constipation particularly, the position in which he may be placed, a close, crowded, or an empty, ventilated apartment, the degree of temperature, and the sort of injury. These are all circumstances calculated to influence that event, as well as to heighten the general predisposition to the disease.

Tetanus is met with in all climates, though more generally in the warm and moist. It is very common in our extreme southern states, and of such rare occurrence in this city, that we have seen in twenty-four years' practice only three cases of it. Each sex, and every age and temperament are liable to its attacks. It is in the male, it is said, of irritable habits, that it oftener takes place, and particularly in the negro, which, perhaps, may be owing, in both instances, to a greater exposure to its causes, rather than to any constitutional predisposition. Climate also modifies the disease. It is milder in the temperate than torrid zone, independently of other evidence of which, Baron Larrey states that he found it far more intense, with a resemblance to hydrophobia, in Egypt, than in Germany.

The attack sometimes comes on within a few hours, according to Chalmers, and there is a case reported by Professor Robinson, of Edinburgh, in which it was excited instantly by a scratch on the thumb from a broken china plate, ending in death in fifteen minutes after this slight injury. But its accession is usually at a much remoter period, several days at least, sometimes even weeks elapse,

and very often not till the wound is nearly or entirely healed, and free from pain and uneasiness.

It is stated by Sir James M'Gregor, in his Report on the Diseases of the British Army on the Continent, that if it did not occur before the end of the third week, the danger was over, and Baron Larrey tells us, that among the troops in Egypt, the fifteenth day was the latest period of its happening.

In its mode of approach it also varies, sometimes gradual and distinctly marked by prelusive symptoms, while more commonly its onset is sudden, without any premonitions whatever. Being a matter of much moment to be acquainted with these precursory signs, we shall indicate them in detail. They are lassitude and anxiety, want of sleep, faintings, a peculiar dejection of countenance, "more in sorrow than in anger," increasing in expression of melancholy distress—with præcordial or gastric uneasiness, and frequently constipated bowels. It has been remarked by Richerand, as also a preliminary symptom, that patients during sleep are very apt perseveringly to extend their limbs—and when the case is a little further advanced, there are twitchings, nervousness, some difficulty of deglutition, and, in turning the head, with pain at the scrobiculus cordis. The wound itself, may afford some useful information, it having been noticed by Baron Larrey as alarming when it becomes dry, and by a later writer, that it is not less so where it is covered by a darkish, unhealthy-looking sanies. Danger may be apprehended whenever the wound has an ill aspect, and especially if it be pallid and without inflammation. But it more frequently happens, that such premonitions are wanting, and the disease comes on abruptly by a sense of tightness about the jaws, neck, and tongue, with lancinating pains at the ensiform cartilage, penetrating to the spine, attended by difficulty of mastication and impeded deglutition. By degrees, all these symptoms become worse, the muscles of the neck are more violently affected by spasm, the abdomen is tense from muscular contraction, the head and trunk are drawn backwards or forwards, as the extensor or flexor muscles may be more strongly affected, or the body bent as a bow, resting on the head and feet, or to one side with the jaws at the same time firmly locked, or the whole muscular system being thus involved in a universal rigidity, the patient remains as a frozen corpse, with the forehead wrinkled, the eyes distorted, the nose pucked up, the cheeks retracted towards the ears, so as altogether to present a most hideous aspect. Not the least characteristic symptom in some cases, is an exquisite morbid sensibility, by which ordinary noises, or slight movements, or a draft of air, or a glare of light, is

felt, and causes the patient to be agitated and disturbed, or thrown into convulsions. The same effect is also experienced by attempting to swallow, especially fluids, the recollection of the suffering from which creates a reluctance to renew the trials, and all food is refused, in these several respects resembling hydrophobia. That such is the uniform severity of tetanus, is not meant to be conveyed. As in other diseases, it has gradations of violence, and the case described is of the most aggravated form of it. But mild as it may be, its spasms are terrible, recurring at short intervals, and accompanied usually with excruciating pain, re-excited sometimes by no evident cause, though more generally brought on by some effort, as changing the posture in bed, or endeavouring to swallow, or to speak, &c. &c. The spasms of tetanus differ from those of most other similar affections, in never becoming entirely relaxed, and hence are of that kind denominated *tonic*, in contradistinction to *clonic* rigidity. It is true that some remission may be perceived, though not sufficiently to yield to the action of the antagonizing muscles. The pain, we have said, of the spasms is usually intense, and such is the fact. But there is a singular case recorded by Sir Gilbert Blane, in which in place of acute pain, a tingling sensation existed, rather agreeable than otherwise, ending however fatally. By the same writer two other anomalous instances are mentioned, where the spasms were confined to the side of the body in which the wound was situated.

It is said by Cullen that this disease is seldom attended by fever, in which observation most of the authorities coincide. During the intensity of the spasms the pulse is contracted, hurried, and irregular, and the respiration is equally disordered, all subsiding, however, in the remission. The heat is not usually increased, though the trunk has been sometimes found hot, while the extremities were cold. Mostly the surface is pallid and damp, and collapsed. Delirium rarely attends it, and the prima viæ are sound, excepting torpor of the bowels, which constantly exists. The secretions and excretions are generally depraved, the urinary diminished, and the alvine large and much disordered. As to the duration of the disease, it varies considerably. Chalmers tells us that it often ends in convulsions in twenty-four, thirty-six, and forty-eight hours, and very rarely exceeds the third day. By Morrison we are informed, that in the West Indies he has known death to happen in forty-eight hours, and one case which endured for twenty days, ultimately proving fatal. It is stated by M'Gregor, in the reports which we have before cited, whose experience was very enlarged, that death took place on the second, third, and fourth days, and even as late as the seventeenth and twentieth

day, though it was not commonly protracted beyond the eighth day. Cooper gives a case that occurred in a military hospital in Holland, where life was continued for five weeks. The patient usually expires in some vehement convulsion, though sometimes there is a relaxation of all the muscles eight or ten hours before the fatal event, with such other appearances as might warrant an expectation of recovery.

It is spontaneous or idiopathic tetanus, with which the traumatic form of the disease is most apt to be confounded. Even here, however, the difficulty of discrimination will not be found very considerable. Distinct from other considerations, to aid our decision, a reference to the mode of production of the case must generally prove adequate to the purpose. Traumatic tetanus is the product only of wounds, and it is easy to determine how far the case is dependent on that cause. To indicate the peculiarity of character of the other species of the disease, modified as it is by the variety of causes inducing it, would lead us into a minuteness of detail, neither pertinent to the occasion, nor sufficiently instructive to warrant the consumption of time. Caused by cold, operating on a previously heated system, which is the most common agency in its production, it is essentially of a rheumatic nature, and may be recognized as such by the retention of certain symptoms of that form of morbid action, disguised as it is by other phenomenon, not ordinarily belonging to it. Even more dissimilar to genuine tetanus, are those spasmodic affections brought on by the narcotic, and occasionally by irritating ingesta, or worms, and where any ambiguity exists, it will be easy to dissipate it by an inquiry into the circumstances under which the case took place. As to hydrophobia, to which in many of its aspects, it is sometimes closely assimilated, we formerly pointed out the most conspicuous difference, and on reaching the pathology of tetanus, the diagnostic signs will be made further to appear.

No disease is scarcely more fatal or less to be controlled than this, and our prognostications of success should always be cautiously guarded. Clarke declares, and which declaration is supported by Moseley, that in the West Indies it is utterly unmanageable, he never having seen or heard of an authenticated cure. Conceding that this may not be strictly true, it still shows the extreme intractability of the disease. The results of our practice in this country, we suspect, would be very melancholy. Nor is the experience of Europe more encouraging. Every one who has writen on the subject complains of the want of success, even in private practice, and we learn from the army surgeons, both of the Continent and of England, that the mortality was dreadful in their practice. Yet there are gradations of vio-

lence in the disease, and all cases are not equally dangerous. It is the opinion of Larrey, who had ample opportunities of determining the point, that opisthotonos, though of rarer occurrence, is invariably less curable than the other shapes of the disease, which he imputes to the pressure on the spinal marrow, and contraction of the larynx and pharynx when the head and trunk are thus thrown back. It may generally be stated that when the attack comes on gradually, and for the first three or four days the jaws are only slightly affected—when the abdomen is not preternaturally hard, or the bowels obstinately costive, the skin moderately warm, and some tranquil sleep is enjoyed, the countenance little changed, a free discharge of saliva, whether spontaneous or by mercury, hopes may be entertained of an eventual recovery. It is remarked by Hippocrates that fever, with white, thick urine, denotes a crisis, the case henceforward ceasing, and to effect which was a leading indication with him. But on the contrary, if the attack be sudden and vehement, the muscles of the neck, back, and belly are rigidly contracted, with severe darting pains from the sternum to the spine, or the abdomen tense, and the least pressure thereon producing spasms, or there is an exquisite morbid sensibility imitative of hydrophobia, or the convulsions frequently recur, and the bowels remain unrelentingly bound, or the urine suppressed, and a cold, damp surface, with a very quick, irritated pulse, and distorted or otherwise materially altered countenance, the danger is most imminent, and we should be prepared for an unfavourable issue.

It has been observed that bodies which have died of tetanus run rapidly into putrefaction, and this may be one reason why *post mortem* examinations have been so rarely practised, and our information limited as to the appearances. It is, however, affirmed that effusions are sometimes found within the cranium, denoting the pre-existence of meningeal phlogosis, though oftener, no such evidence is to be discerned. More generally is to be seen inflammation in the mucous coat of the stomach about the cardia, in the tract of the œsophagus, including the pharynx, both of which contracted and covered with viscid, reddish mucous. The same appearances have been observed in the bowels, which, however, are oftener loaded with matter widely different from natural fæces. Lately, the spinal marrow has attracted attention, and most of those who have engaged in the inquiry, represent it as pretty uniformly inflamed, in some instances intensely so, with extravasations of coagulated lymph, and still more copious serous effusions. But this can hardly be claimed as a discovery. The same phenomena were noticed by Fernelius in idiopathic tetanus, and confirmed by others. Lieutaud expressly states that in

spasms and convulsions of this kind the spinal marrow is affected, and that a watery fluid is effused between the integuments. Belfinger holds nearly the same language, and Burserius declares that the principal seat of the disease is in the brain and spinal marrow, and more certainly in the latter. It is, however, affirmed by Swan in a recent essay on the disease, that according to his dissections the ganglionic system is more than any other part concerned. Most of the ganglia, of the grand sympathetic, throughout its distributions, he uniformly found highly inflamed, and in other respects greatly changed from the healthy state, which appearances, he further says, he has since ascertained had been noticed by Aronsson of Strasburg, and by M. Andral, Fils, of France. He might have added Lobstein, who also remarked them.

In considering the pathology of tetanus, perhaps little more at present can be assumed, than that it is primarily an affection of the spinal marrow, whether of simple irritation or active phlogosis, is not satisfactorily determined, though probably the latter condition ultimately predominates. That the disease is mainly located in this part, is abundantly shown, without any appeal to its symptoms, or the evidence of dissection, by the simple fact that it may be brought on in decapitated animals, merely by the insertion of a probe in the spinal marrow.

Thus far it resembles hydrophobia, and in the subsequent play of sympathies the analogy holds to a considerable extent. It seems however to differ in this respect, (determining from symptoms in contradistinction to the statements of Swan,) that the spinal nerves retain more exclusively the irritation, those of the cerebrum and ganglionic system suffering comparatively little. Nor is this the only dissimilarity. The muscles in tetanus evidently acquire a greater degree of irritability, and the irregular spasmodic movements are not of the same character in the two cases. Muscular action, natural or morbid, is influenced by nervous influence—and it is equally admitted, that spasm depends on opposite states of the muscle, a high or reduced degree of excitement, and is alike the result of inordinate stimulation and of exhaustion. The spinal marrow, the fountain of that nervous energy which the muscles receive as their incitement to action, may be so affected by morbid impressions, as to have its capacity to elaborate this energy invigorated or weakened, and hence applied to the muscles in excess, or the reverse, and consequently the one or the other sort of spasm takes place. Comparing what is observable in the two diseases in relation to this point, we think we shall be led to the conclusion, that while in hydrophobia the nervous supply is diminished,

there is a redundancy of it in tetanus. In support of this inference the fact may be appealed to, that the spasm in the one instance is milder, followed always by relaxation, whereas in the other, it is violent in the extreme, and nearly unrelenting.

It has been intimated as a further distinction, that the cerebral and ganglionic nerves are more implicated in the hydrophobic than tetanic affections. Looking at some of the phenomena in hydrophobia, the heavy congestions which occur in the brain, the lungs, and, occasionally, in the abdominal viscera, we have additional proof of a defect of nervous energy. Experiments demonstrate, as mentioned in our preceding review, that whenever there is a want of such energy, by destroying the nerve, or in any mode intercepting the supply, the organ labouring under the disability uniformly fills with dark blood—and are not such the appearances in hydrophobia? It may be true, that occasionally, the great sympathetic and its connexions become involved in tetanus, contrary to its general tenor and character. By Mr. Abernethy such a view seems to be entertained, and in explanation of the occurrence, he supposes, that during the irritable state of the wound, the digestive organs particularly are deranged, which condition reacting on the injury, even after it has healed, or is apparently doing well, revives the disposition to tetanus, and the nervous system generally is involved.

It being universally conceded that little can be accomplished towards the cure of tetanus, every care should be practised to obviate the occurrence of the disease, and this consideration will first engage our attention. The wound should be examined, and all sources of irritation, as dirt, and other extraneous matters removed, and, under certain circumstances, it may be proper to dilate it, and particularly where a nerve has been partially divided. To induce healthy inflammation in the injured part is deemed of the highest importance, and with this design, a pledget of lint soaked in the spirit of turpentine, is perhaps the best application which can be made to it. This end being attained, suppuration should be promoted by an emollient poultice—and if there be much local pain and irritation, laudanum may be added to it, and a dose of it exhibited internally. Next the bowels are to be evacuated and kept in a soluble state. As a prophylactic, a mercurial course has been recommended by Clarke and other writers, particularly after a surgical operation. But it is probably ineffectual, as cases of tetanus have occurred during a salivation for another disease—and it might be even positively pernicious by increasing the irritability of the system. The diet is to be nutritive, rather more cordial than usual, and with an increased quantity

of wine for a few days. Need we say, that all the predisposing and exciting causes, formerly pointed out, should be studiously avoided.

As to the treatment of the disease itself, it is a subject replete with difficulty. Every plan has occasionally succeeded, and every plan has more frequently failed. Called to a case, this moment, we should really be embarrassed what to do, and must, therefore, present more a review of the several prevalent modes of practice, than indicate any definite course confidently to be preferred. Nor are doubt and hesitation in this respect peculiar to ourselves. No candid practitioner holds other language, and in perusing the various treatises on the disease, we shall see one uniform attempt to determine, amidst the most contradictory accounts of the remedies, which, on the whole, has been attended with the least ill success. Entertaining the conviction that the disease is purely of a symptomatic nature, excited and maintained by the irritation of the injury, it was reasonable to presume, that by doing away the cause, the effect would necessarily subside. Conformably to such a view, which has long been entertained, is in part the treatment of tetanus. Topical applications however, of a very different kind are recommended. By some it is proposed to lay open the wound, and fill it with the spirit of turpentine, or to dress it with the epispastic ointment, or to apply the potential or actual cautery to it—while others recommend sedative and soothing measures, as an emollient poultice, or a cataplasm of tobacco, or lint wet with laudanum. It is obvious that these opposite means must be suited to very different conditions of the injury, either as it is indolent or irritable, and the one or the other is to be preferred accordingly. As an extension of the same principle, amputation has been strenuously insisted on by Baron Larrey, by whom some instances are adduced of its success. But it has failed in other hands, and particularly in those of Sir Astley Cooper, who has publicly protested against it, in which denunciation there seems to be a pretty general concurrence of surgical authority. The fact is, that all these local remedies have proved very precarious, and are held of doubtful utility. Nor perhaps is it very difficult to assign a reason for it. To be of service they must be resorted to very early in the inchoate state of the case, since after it is formed, or in other words, the morbid impression pervades the system, it becomes independent of the primary irritation, and the removal of it, even if it could be effected, were nugatory.

Equal uncertainty prevails as to the most eligible general or constitutional mode of managing tetanus, every internal remedy having

proved as unavailing as the topical means described. Three plans of practice are now pursued by the profession, amidst numerous empirical suggestions occasionally adopted—and from the irreconcileable hostility of principle which dictates them, we are entitled to infer that they are all wrong, and the cures claimed under each, are as much to be ascribed to the resources of nature, as to any remedial efficacy. The first of these plans is by the narcotic substances, the best of which is opium. To doubt entirely its success, especially in mild and lingering attacks, would be unwarrantable scepticism. It too often fails, however, and seems only to have been of advantage when commenced early, and in very large doses, frequently repeated. The quantity indeed sometimes given, is so enormous as to exceed credibility, were we not aware of the great expenditure of susceptibility in most of these affections. It is to this circumstance, the loss of susceptibility to remedial impressions, that our want of success is perhaps in a great measure to be imputed. The stomach indeed seems to become exanimated, or to be deprived of most of its vital capacities. Medicines introduced into it, neither act on it, nor are acted upon. Dead matter lies inertly on dead matter. It were easy to demonstrate this proposition by diverse testimony, could we descend to such details. But a single fact may suffice, which is supplied by Mr. Abernethy, who states, that in a case under his care, where thirty drachms of opium were given, the whole was found after death, in the stomach, undissolved or otherwise changed. Combinations of opium, with musk, or camphor, or ether, are a favourite remedy with some, the utility of which is questionable. Most other antispasmodics have had a trial, including the warm bath, and with results not encouraging. The latter sometimes is temporarily tranquillizing, though never curative—is very apt by the disturbance of the patient to bring on violent spasms—and death has occurred from it. As a part of the same system, we may here include with propriety emetics, either to vomit, or in nauseating doses, and also relaxing enemata. No advantage we suspect has been derived from the former, in either mode of exhibition. The latter, however, are perhaps deserving of attention. An infusion of tobacco administered in this way has cured several cases of the disease in this country, and though it failed in the British military hospitals, it is not spoken of contemptuously. The fumes we should prefer. By an injection of tartarized antimony, we have reason to believe, we once relieved a case of traumatic tetanus.

The reverse of this course of treatment is also practised. Believing the disease to be one of debility, powerful stimulants are directed, as wine to the amount of several quarts daily, and as is alleged,

with occasional success. But hard as it is to question these statements, coming as they do from respectable sources, they are not too hastily to be received. Laying other objections aside, how could so much fluid be taken by an individual with *locked jaws*, where it is often difficult to introduce the smallest portion, and every effort of swallowing produces convulsions? Credat Judæus, &c. Medical testimony is fallacious, and not to be relied on, even where veracity cannot be impeached.

As a modification of this plan, tonics have had the confidence of some practitioners, and more particularly the Peruvian bark, the cold bath, &c. They too "have been weighed in the scale and found wanting." There was a time when cold water in every shape of application, had great repute, and not a few cases might be adduced of its efficacy: but it is now pretty much exploded. The army surgeons both of France and England, declare that it is worse than useless.

Notwithstanding the repudiation of the practice, it may not be uninteresting to notice the chief authorities by which it was sustained. As early as the time of Hippocrates it prevailed, by whom, indeed, it is declared, that affusions of cold water constitute the very best treatment, though he positively excepts traumatic tetanus, in which he deemed the practice pernicious. But without any such limitation it has been greatly extolled by many modern writers, among the most distinguished of whom are Wright and Currie. The mode which they pursued was to plunge the patient into cold water, and keep him in it till nearly exhausted, by which muscular action became relaxed. Even admitting that a few cures were thus effected, the countervailing evidence is so great, that the remedy has lost confidence, and as just stated, is no longer employed.

Nothing can more strikingly prove the unsettled state of opinion on this subject, than the recommendation of depleting and evacuating measures in this disease. Moseley says that the Spanish surgeons in the colonies bled their patients, when plethoric, in both arms and legs, and of late some very distinguished practitioners have become advocates for venesection in the early stage of it. Larrey has published several cases illustrative of its good effects, and M'Gregor has done the same. Dickson, an authority of scarcely less weight, thinks, "that in a full habit, when the wound is swelled, inflamed, and painful, bleeding and free purging, with such other means as are calculated to allay the general and local irritation, afford the fairest chance of arresting the danger." Distributed throughout the periodical journals, there is considerable evidence of similar purport. On the other hand, it has been tried in numerous instances, and with the

most decided injury. De Haen, who experimented largely on the subject, among other remedies, resorted to venesection, and in one case carried it to the amount of one hundred and thirty ounces in twenty-four hours, and killed the patient.

As to purging, it is well known that Hamilton has given the most unqualified commendation to it, in his celebrated treatise on purgatives, sustained by much concurrent testimony from other sources. It is a practice, in our opinion, deserving of much attention, and in which we are supported by Mr. Abernethy. That great practitioner declares, that he "is convinced in tetanus and all nervous affections, it is a most material point to operate on the brain through the digestive organs, and that producing secretions from the alimentary canal has a more beneficial effect in tetanus especially, than any other means we can employ." It is confessed to be decidedly useful in trismus nascentium, and, from analogy at least, we may conclude it might prove so in the other species of the disease.

What shall we say of mercury, a remedy *sui generis*, which at one period inspired universal respect, and was as universally employed? Long had its reputation been on the decline, when it came to be completely extinguished by the reports of the medical men attached to the service of the late belligerents of Europe. No trial of it could have been fairer than was made by them, as well internally as by the most copious inunctions, and without any success.

Not altogether dissimilar to mercury, in some of their properties, are the preparations of arsenic and lead, each of which has been used in this disease. We had formerly here a graduate from Virginia, who gave us in his thesis, several cases of tetanus cured by his preceptor with Fowler's solution and laudanum, and on the suggestion of John Hunter, the acetate of lead has been tried, though we doubt successfully.

Conforming to the present pathological view of tetanus, that it is mainly seated in the spine, is the practice which seems most eligible. Topical bleeding, blistering, or issues by moxa, or the common or actual cautery, throughout the vertebral column are the remedies proposed. These would appear to promise well, and some cases are reported in the writings of Europe and this country of their success. But really, though claimed as such, their is nothing new in the suggestion. We have already seen that a similar pathology is to be met with in several of the old authorities, and sixty years ago, a surgeon of the name of Carter published a case of tetanus cured by the application of a strip of epispastic plaster along the whole of the spine. It may be further learnt from Moseley, that it was a common practice

in the West Indies, more especially in the Spanish and French islands, to dry cup the spine, shoulders and breast, or deeply to scarify these parts and dress them with irritants, or at once to resort to cauterization. As the result of all our inquiries and reflections on the subject, we should now be led to adopt this revived course, aided by the liberal use of opium, taking care at the same time, to preserve the bowels in a laxative condition, and, perhaps, under certain circumstances, resorting to relaxing enemata of tobacco, or emetic substances. These failing, we would endeavour instantly to induce the most copious diaphoresis, by the Dover's powder and vapour bath, to be kept up for a length of time, which seems plausible in theory, and has actually proved serviceable, on the authority of some cases reported by Latham, an eminent physician of London. It is on the same principle that the sand-bath has been lately proposed by Stedman, of one of the West India Islands. Great, and sometimes insuperable difficulty will be opposed to the exhibition of medicines by the mouth, from the fixedness of the jaws and impeded deglutition. The œsophagus tube cannot be used, even where the mouth may be open, since experience shows that all attempts to introduce it have been foiled, by the violent spasms and convulsions it excites. The rectum, therefore, is the only medium left in such an emergency.

Nor would we, while conducting this general treatment, neglect to call into requisition as auxiliary to it those local means, particularly pressure by the tourniquet, &c. which were indicated under the head of hydrophobia.

It may be proper, at least, as a matter of some curiosity, merely to allude to an extraordinary practice among the inhabitants of the Tonga, or Friendly Islands in the south Pacific Ocean, among whom we are told traumatic tetanus prevails to a great extent. It consists in producing a considerable degree of irritation in the urethra, and a discharge of blood from that part by the introduction of a reed of proper size, for some distance into the canal, and when the case is very violent, by passing a cord along the urethra through the perineum, the two ends of which are occasionally pulled to and fro, inducing great pain, and a copious hæmorrhage, with much swelling and inflammation of the penis. By Mr. Mariner, from whom we derive the account of this strange and unpromising practice, it is stated that he witnessed two cures of confirmed tetanus from it. Every fact relating to the treatment of this disease is interesting, and without advising this precise mode, it may suggest a principle capable of improvement. It was indeed somewhat on this principle, that Dr.

Brown of Lexington, many years ago proposed exciting strangury in tetanus as a cure, and bore some evidence to its efficacy.

In closing a discussion in which so little practically useful has or can be said, we perhaps owe an apology for the length to which it has been extended. Though it may be true that we leave the subject in nearly the same obscurity that we found it, we cannot so far depreciate our labours as to presume them worthless. Humble as is the service of him who merely clears away rubbish, and removes difficulties, he is not without merit. We have endeavoured at least to prepare a site on which others may hereafter erect a glorious edifice.

N. C.

Art. XV. *On Difficult Cases of Parturition, and the use of the Spurred Rye.* By W. Michell, Member of the Royal College of Surgeons, London. Printed for Thomas and George Underwood, Fleet street, 1828, pp. 128.

Researches respecting the Natural History, Chemical Analysis, and Medical Virtues of the Spur, or Ergot of Rye, when administered as a remedy in certain states of the Uterus, with a Coloured Engraving. By Adam Neale, M. D. Physician to his Majesty's Forces, and to his late Royal Highness, the Duke of Kent, &c. &c.

THERE is no substance of modern introduction to the materia medica, that has so entirely engrossed the attention, and divided the opinions of medical practitioners, as the secale cornutum, or the ergot of rye. From the moment that the public were made acquainted with its real, or attributed virtues by Dr. Stearnes, it has not ceased an instant to claim general investigation, and to elicit the opinions of all obstetrical practitioners upon its pretensions. So general has this feeling prevailed, so interesting have its powers appeared, and so ardent has hope been to find all its imputed virtues realized, that every one who had the charge of females in particular, under their care, felt that they would not be rendering justice to their patients, did they not exhibit this substance when either difficulty or delay attended the parturient function.

The pretensions of this drug were so imposingly set forth, and so generally justified by the experience of those who had made trials of it, that its adoption in practice was as sudden, as it was universal. The timid and the daring, alike became its advocates, and with such